



West Central News

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Hypocalcemia — It's not just milk fever anymore

Milk fever still occurs in far too many cows – about 5.2% of all cows in the 2001 National Animal Health Monitoring Survey (USDA-APHIS). Milk fever is a gateway disease. A cow that has recovered from a bout of milk fever is more susceptible to a variety of secondary diseases such as displaced abomasum, ketosis, retained placenta, metritis, and mastitis. Problems with retained placenta, metritis, and mastitis appear to be a result of the effects low blood calcium has in blocking the function of immune cells in the cow. While we all recognize the “down” cow with milk fever, her blood calcium is already below about 4.5 mg/dl serum. For every milk fever cow observed there are about ten in the herd with a blood calcium concentration between 4.5 and 8 mg/dl at calving (normal being between 9.25 and 10mg calcium /dl serum). While the cows appear rather normal, careful observation would reveal reduced feed intake, reduced rumen function, and increased body fat mobilization in these cows. We need to shift our focus to these cows.

Elevated dietary potassium induces an alkalotic state in the cow, preventing calcium regulating mechanisms from functioning. Low blood magnesium concentration can also interfere with calcium regulation in the cow. Limiting the amount of potassium in the close-up ration and boosting magnesium content will greatly reduce the incidence of milk fever. However, to impact the degree of sub-clinical hypocalcemia in a herd it's best to couple a low potassium, high magnesium diet with an anion source to induce a

compensated metabolic acidosis in the cow to enhance calcium entry into the blood. To achieve a metabolic acidosis, the chloride and sulfate anions are used. It is also important to add the anions in a form that does not impact feed intake greatly. Beede et al., (1992) found adjusting DCAD of the close-up ration resulted in over 700 lb more milk / cow compared to herdmates that did not receive the anion supplemented diet. Block's 1984 study suggested the difference could be as much as 1100 lb milk/ cow.

SoyChlor was developed with these facts in mind. It is based on chloride supplementation because, on a mEq basis, sulfate is only about 60% as effective an acidifier as chloride. It also presents the chloride to the cow adsorbed onto a low potassium mixture of distiller's grains and expeller soy meal so palatability is improved over traditional anionic salts. Additionally, SoyChlor is 2.6% magnesium, which is in a soluble form designed to cross the rumen wall more efficiently than the magnesium oxide traditionally used to supply magnesium.

1. Beede, D. K, D. C. A. Risco, G. A. Donovan, C. Wang, L. F. Archbald, and W. K. Sanchez. 1992. Nutritional management of the late pregnant dry cow with particular reference to dietary cation-anion difference and calcium supplementation. Proc. 24th annual convention Am. Assoc. Bovine Practitioners, p 51.

2. Block, E. 1984. Manipulating dietary anions and cations for parturient dairy cows to reduce incidence of milk fever. J. Dairy Sci. 67:2939.

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